Liberty manufacturing
co., Pittsburg

Economy

PREFACE.

To Boiler Users:

We are the originators of the first successful tool for cleaning water tube boiler tubes, and have developed a line of machines for this purpose that are as nearly perfect as is possible to make them with the best engineering ability available, combined with our long experience in this line.

The success of the Liberty Tools has encouraged other manufacturers, who in order to compete with us, have attempted to copy us, and in so doing infringed a number of our fundamental patents. Suits have been pending against these infringers for some time. We invite your attention to Judge Buffington's decision, given in the appendix of this bulletin which sustains our patent covering the freely swinging arm head.

Infringers of our patents have circulated false reports regarding the status of this litigation, and in sending you a copy of this decision it is done only for the purpose of acquainting the trade with the true situation.

The other suits that are pending are being pushed most aggressively. We have other applications in the Patent Office covering some of the details of our later machines, and as soon as these patents are issued additional suits will be brought.

On the following pages we briefly describe a few of our different types of cleaners. Before you clean your boilers the next time, we would suggest that you communicate with us, giving us the size of your tubes and thickness of scale, and upon receipt of the information we will take pleasure in sending you a machine which we consider best adapted for the work. If it does not clean your boilers quicker, better and with less wear and tear on the machine, as compared to any other machine you are using, you have the privilege of returning

it to us at our expense. In making this statement we are perfectly willing that the Liberty Cleaner be tested in competition with any other tube cleaner, whether it be turbine, rotary motor, or so called power machine.

There are imitations of our machines on the market, regarding which the most extravagant claims are made. As these imitations are only attempts at copying our goods, and as the copyist has to await the latest development before making the imitation, we would respectfully request that you make a thorough investigation of our latest improved tools before adopting tools of any other make, as you will find our machines superior to others, not only in design, but material and workmanship as well.

We also illustrate a number of our other specialties, to which we invite your attention.

Feed water regulators are becoming a necessity in all modern steam plants, and we take pleasure in announcing that we have developed and perfected a new type of feed water regulator, which is a marked improvement over any other feed water regulating device. If you are interested in feed water regulators, and will write us, we will be glad to explain to you its merits. **IT WILL PAY YOU TO INVESTIGATE THE LIBERTY FEED WATER REGULATOR BEFORE YOU PLACE YOUR ORDERS ELSEWHERE.**

Liberty Manufacturing Co.

6910 Susquehanna St.

PITTSBURG, PA.

HEAVY DUTY LIBERTY CLEANER.

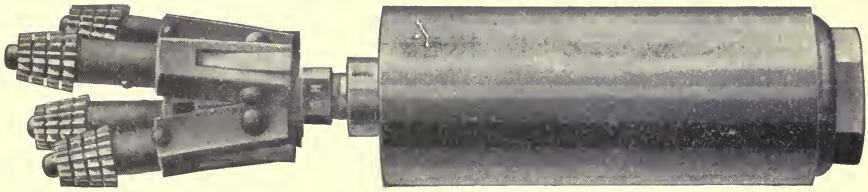

Fig. 1

The freely swinging arm head as shown attached to the Heavy Duty Cleaner on the above illustration is the cleaner which is referred to in the United States Court decision. This head is used for light and medium scale. For very heavy scale, and tubes which have been long neglected, we use the four-winged head, as shown in Fig. 2, attached to the extra heavy universal coupling.

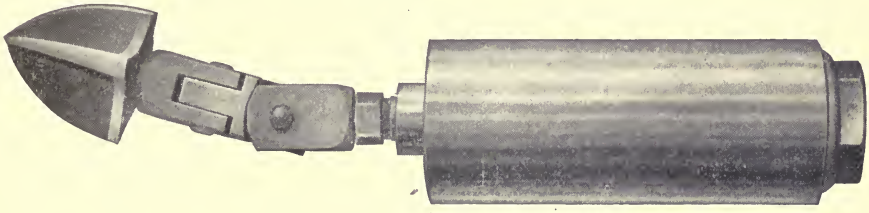

Fig. 2

In using this Fig. 2 head, the freely swinging arm head is detached from the motor and the universal coupling attached direct.

If you have a large boiler plant and the scale is heavy and hard to remove, you will find that the Liberty Heavy Duty will do the work in less than half the time now required with your present tool. We make this very broad statement regardless of the tool you are now using.

This Heavy Duty Cleaner differs from other turbines, in that the body is made of a solid piece of steel, all parts are made extra heavy, so that the turbine is practically indestructible.

LIBERTY STANDARD CLEANER.

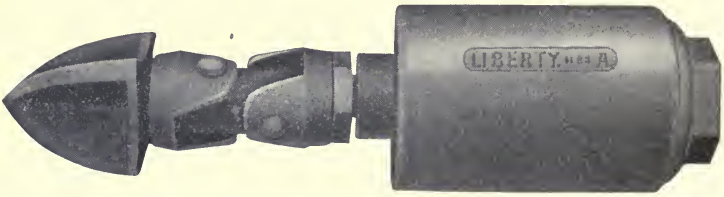

Fig. 3.

Figure 3 shows our Liberty Standard Cleaner, to which is attached the same cutting head as shown in Figure 2. This machine is also supplied with the same kind of cutting head as shown on the Heavy Duty Machine, and is illustrated in Fig. 1.

The bodies of these turbines are made of either brass or steel, and they are designed for ordinary service in moderate sized plants where the cleaning is done at frequent intervals

PNEUMATIC CLEANER.

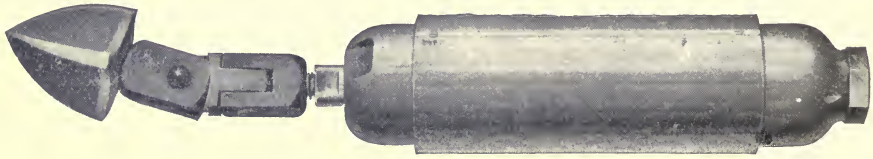

Fig. 4.

If you have a good supply of air, your attention is called to the Pneumatic Cleaner, as shown in Figure 4. This machine is equipped with heads similar to those shown on our Heavy Duty and Standard machines. We make these pneumatic tools for all sized bent and straight tubes, and you will find this machine a very efficient tool. The motor is a rotary type and not a turbine. It has few wearing parts and has proven equally as efficient as any other tool we manufacture.

NIAGARA No. 2

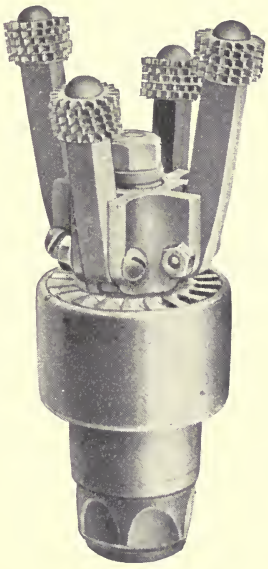

Fig. 5.

Figure 5 illustrates our Niagara No. 2 Machine, which has a very extensive use in small plants and where the scale is not over $\frac{1}{4}''$ in thickness. The Niagara is a ball bearing machine well designed and is recommended for new boilers, or where the scale is light and does not accumulate very rapidly

In comparing this machine with other ball bearing cleaners it will be noticed that it is very much more substantial in construction, the arms are heavier and the parts more durable. In addition to these advantages it develops more power than any other ball bearing machine in existence.

TWIN STRAINER.

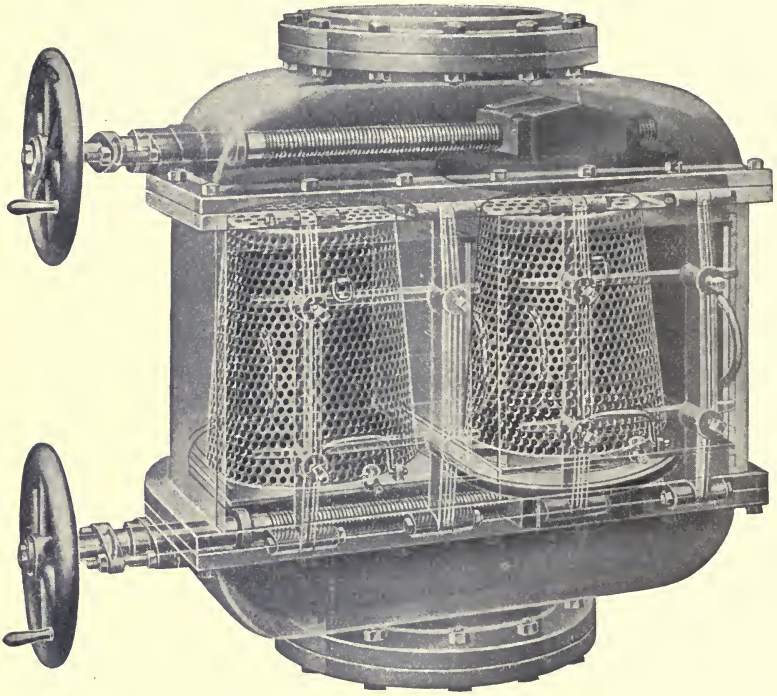

Fig. 6.

The above illustration shows our Twin Strainer, which is, as its name implies, two strainers in one, which are alternatively thrown in and out of action by simply operating a pair of valves, the strainer not in use being accessible for cleaning. The apparatus consists of a casing having two passage ways, each containing a basket shaped strainer removably secured in the side of the casing, forming perforated pockets which catch and retain the dirt in the water. By a simple arrangement of the valves the flow of the water, or any other liquid to be strained, is caused to flow through one basket while the other, being out of service, can be cleaned and replaced without interrupting the flow.

This strainer is indispensable for condenser installations, especially when used in connection with steam turbines, as uninterrupted high vacunms can be maintained no difference how much foreign matter may be carried in the water supply.

A Twin Strainer should be used on every water line carrying anchor ice, sticks, leaves, grass, waste, fish, wood, cinders, or any other refuse, as it will soon pay for itself in preventing expensive shut downs.

LIBERTY PURIFIER.

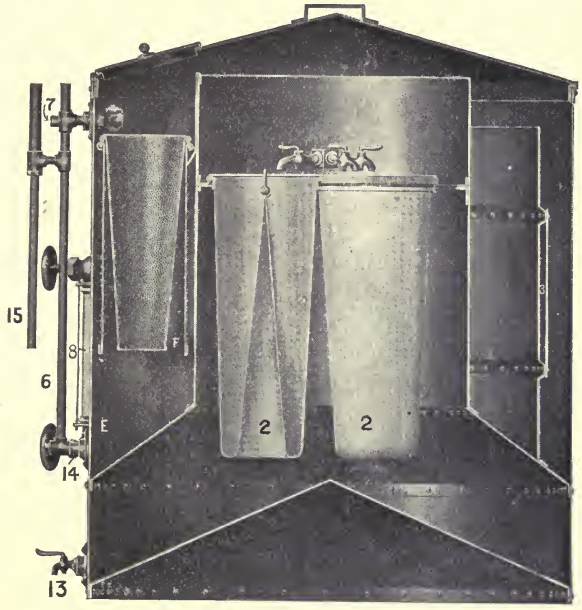

Fig. 7.

Figure 7 shows our type "O" Liberty Oil Purifier in which gravity is used as a purifying means, in conjunction with a fine strainer mesh. No water of any kind is used through which the oil is passed. The principle upon which the purifier operates is as follows:

1st, The oil is strained; 2nd, Separated from the entrained water; 3rd, Heated to a high temperature; 4th, Treated in the treating chamber at this high temperature,

thereby releasing the heavy impurities and allowing them to settle in the bottom of the chamber; 5th, Then passing the oil through filter bags and delivering it into the clean oil chamber ready for use.

These purifiers will restore the dirtiest oil to its original value, and can be used either in conjunction with an oiling system, or otherwise to meet the local requirements.

FABER BLOW-OFF VALVE.

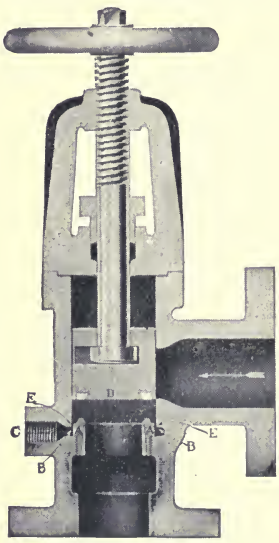

Fig. 8.

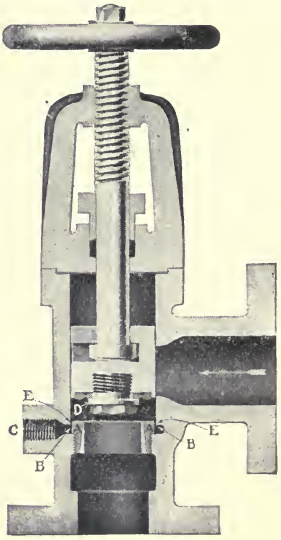

Fig. 9.

Figures 8 and 9 show the Faber Blow-Off Valve, the advantage of which is that a steam jet is connected to it in such a way that just before the valve seats the steam entering through the steam connection throughly removes any sediment that may lodge on the seat, thus preventing damage to the seat and disc by closing the valve on top of this accumulated sediment.

Upon request we will take pleasure in supplying you further information and prices on any of our appliances.

LIBERTY MANUFACTURING CO.,

6910 Susquehanna St. **Pittsburg, Pa., U. S. A.**

APPENDIX.

In the Circuit Court of the United States for the Western District of Pennsylvania.

No. 47 Nov. Term, 1902.

LIBERTY MANUFACTURING COMPANY,

vs.

AMERICAN BREWING COMPANY.

BUFFINGTON, J.

This Bill in Equity brought by the Liberty Manufacturing Company against the American Brewing Company charges infringement of claims 1, 2, 5 and 6 of Patent No. 641,092, issued January 9th, 1900, to W. S. Elliott for a boiler tube cleaner. The respondent is a mere user and the case is defended by the maker of the device in question, the Lagonda Manufacturing Company.

Prior to the patent is question, the use of water tube boilers had developed a serious trouble in the formation of a stone lime crust on the inner surface of the tubes due to the action of heat on the mineral salts contained in the water. This layer reduced steam space and capacity and increased fuel consumption. So serious was this trouble owing to the difficulty in removing the crust that the Stirling Company, one of the largest makers of such boilers, was threatened with disuse of their boilers on that account, its tubes, owing to end curves, being especially hard to clean. Elliott, the patentee, who had charge of the Pittsburg Agency of that Company,

being aware of this trouble, set about to solve it, and as early as February 12, 1897, drew a sketch which disclosed the device subsequently embodied in the patent in suit. With this device is used a turbine of smaller diameter than the tube to be cleaned, which is attached to a hose. To the shaft of the turbine, which shaft may be provided with a universal joint to allow the device to follow the end curvature of tubes, is attached a head which constitutes the Elliott device. This head is provided with four longitudinally extending arms pivoted at their rear ends in inset openings at four equidistant points on the periphery of the head. A set of two arms of longer length and a set of two of shorter length are mounted at right angles. On the forward, free end of each arm, a toothed movable cutting wheel is mounted on a shaft extending lengthwise the arm. When the turbine shaft is rotated at high speed, the forward extending arms on the head by centrifugal force fly outward, bring the cutters in contact with the scale and deliver a rapid succession of blows of both a revolving and striking character. This blow is variously described in the proofs as a sidewise or swiping blow and the process is styled a picking action. By these blows the crust is broken into small pieces which are washed out ahead of the device by the exhaust of the turbine. The claims in controversy are as follows: "A rotary tube cleaner having freely swinging arms, the planes of movement of the arms being longitudinal of the axis of the tool, and cutting discs secured to the arms and lying in planes transverse to the axes of said arms; substantially as described." "2. A rotary tube cleaner, having freely swinging arms moving in planes longitudinal of the axis of the tool, each arm carrying a series of toothed discs lying in planes transverse to the axes of said arms; substantially as described." "3. A rotary tube cleaner, having freely swinging arms moving in planes longitudinal of the axis of the tool, said arms carrying cutting discs lying in planes transverse to the axis of the arms, the cutters upon one arm being in advance of those upon the other; substantially as described." "6. A rotary tube cleaner, having pivoted thereto freely swinging arms with free outer ends, said arms

moving in planes longitudinal of the axis of the tool, and cutting discs rotatably mounted upon the arms near their outer ends and lying in planes transverse of said arms; substantially as described."

The device was successful, supplied a recognized need in boiler practice and met with prompt commercial success. It is sought to invalidate the patent on the ground it was a joint invention of Elliott and Faber. The uncontradicted evidence afforded by Elliott's sketch of February, 1897, however, carries the conception of the device by Elliott back of any alleged suggestion by Faber. Much testimony has been taken. Narrowed down it discloses no patent which so resembles Elliott's device as to warrant present discussion. It is sought, however, to show two prior uses, viz: that of Bradley and those of Weinland. As to the former, we are clear that the device, if a subsequent use, would not infringe Elliott's claims and as a prior use did not anticipate. While Bradley had forward pointed arms, yet they were provided with stationary slanting cutting knives which served to scrape the tube. It lacked the revoluble cutters of the Elliott device. The Bradley device left no impress on the art and the reason for this we find in the testimony of respondent's witness, Kennedy, the Manager of the Isabella Furnace where Bradley used the cleaner, who says he "objected to the use of this cutter on the boilers for fear that the cutters being revolved at great speed in the tube would cut the tube. I considered they were cleaning them too well."

As to the numerous Weinland devices, we are convinced by the proofs that a clear and satisfactory case of prior use, such as the law requires, is not made out. Indeed, the statements made by Weinland himself in 1901, to Swartz, a friendly witness, in commenting on their conversation and views on the boiler cleaner problem in 1898 are wholly at variance with the contention now made by the respondent. It may be conceded that some of the contended for devices of Weinland were along the line of development which Elliott successfully perfected, but none of them went to the full extent Elliott did, and it required that full extent of development

to make the device, such as is now made by complainant and defendant company, a success.

On the whole we are satisfied that a prior use is not established, either by the proofs or the character of Weinland's devices. The patent being adjudged valid, we are of opinion infringement is established. The main difference between the two devices is in the fact that in the Lagonda device the two sets of arms instead of being of different lengths pivoted on the same plane, are of the same length but pivoted from two different planes. This, however, is a mere mechanical alternative, which still serves to answer the element of the fifth claim, which reads, "One arm being in advance of those upon the other." Let a decree be drawn.